System Requirements for Online Testing

This document contains basic technology requirements for online testing using American Institutes for Research's (AIR) systems for the 2014–2015 test administration. This document contains the following sections:

- Supported Operating Systems for Student Testing

- Supported Web Browsers for Online Systems

- Requirements for Peripheral Equipment

The following publications provide additional information:

- For information about installing secure browsers, refer to the *Secure Browser Installation Manual*.

- For information about network and Internet requirements, general peripheral and software requirements, and configuring text-to-speech settings, see the *Technical Specifications Manual for Online Testing*.

- For information about securing a computer before a test session, see the *Test Administrator User Guide*.

- The above resources as well as test administration manuals and user guides for other systems are available on the Maine Assessments portal (https://me.portal.airast.org).

Supported Operating Systems for Student Testing

This section describes the supported operating systems for online testing.

> ⚠ **Warning: Support for New Desktop Operating Systems**
> Operating systems that become available but do not appear in the following tables are not supported. Do not upgrade to new operating systems on computers that will be used to administer online assessments without ensuring the updates meet the required specifications.

If you have any questions about a new operating system or software updates, please email meatech.doe@maine.gov.

Desktops and Laptops

Table 1 lists the operating systems and hardware required for student testing. Online testing functions effectively with the minimum requirements listed. However, the recommended specifications provide improved performance.

Table 1. Supported Desktop Operating Systems

Supported Operating Systems	Minimum Requirements	Recommended Specifications
Windows XP (Service Pack 3), Vista, 7, 8.0, 8.1 Server 2003, 2008 (thin client)	Pentium 4 or newer processor that supports SSE2 512 MB of RAM 200 MB of hard drive space	Pentium 4 or newer processor that supports SSE2 2 GB+ RAM 80 GB+ hard drive
Mac OS X (PowerPC) 10.5	PowerPC G3, G4, or G5 processor 128 MB RAM 200 MB hard drive	1.3 GHz processor 2 GB+ RAM 80+ GB hard drive
Mac OS X (Intel) 10.5	Intel x86 processor 512 MB of RAM 200 MB hard drive space	1 GHz or faster processor 1 GB+ RAM 80+ GB hard drive
Mac OS X (Intel) 10.6–10.10	Intel x86 processor 512 MB of RAM 200 MB hard drive space	Pentium 4 or newer processor 2+ GB RAM 80+ GB hard drive
Linux Fedora 16, 17, 18, 19, 20 openSUSE 13.1 Red Hat Enterprise Linux 6.5 Ubuntu (LTS) 10.04, 12.04, 14.04	Intel x86 processor 512 MB of RAM 200 MB hard drive space Required Libraries/Packages: • GTK+ 2.18 or higher • GLib 2.22 or higher • Pango 1.14 or higher • X.Org 1.0 or higher (1.7+ recommended) • libstdc++ 4.3 or higher	Pentium 4 or newer processor 2 GB RAM 80 GB hard drive Recommended Libraries/ Packages: In addition to the required libraries listed under minimum requirements, the following should be installed: • NetworkManager 0.7 or higher • DBus 1.0 or higher • HAL 0.5.8 or higher • GNOME 2.16 or higher

Tablets

[Table 2](#) lists the supported tablets, operating systems, and related requirements.

Table 2. Supported Tablets and Operating Systems

Supported Operating Systems	Supported Tablets	Related Requirements
iOS (iPads) 6.0, 6.1 7.0, 7.1 8.0–8.2	iPad 2 iPad 3 Fourth-generation (Retina Display) iPad Air	See the *Technical Specifications Manual for Online Testing* for information about configuring iOS for online testing.
Android 4.0.4 through 4.4	Google Nexus 10 Motorola Xoom Samsung Galaxy Note (10.1) Samsung Galaxy Tab 2 (10.1) LearnPad Quarto	See the *Technical Specifications Manual for Online Testing* for information about configuring Android for online testing.
Windows 8.0, 8.1	Surface Pro Asus Transformer Dell Venue	N/A

Chromebooks

[Table 3](#) lists the supported Chromebooks, operating systems, and related requirements.

About Chrome OS and Automatic Updates

AIR recommends turning off or delaying automatic updates of the Chrome operating system. Doing so allows AIR to review changes from Google and address any updates that pose a potential risk to student testing. The recommended period for delaying automatic updates is two weeks.

Automatic update settings are configured in Google's admin console.

Table 3. Supported Chromebooks

Supported Operating Systems	Related Requirements
Chrome OS 31–39	See the *Secure Browser Installation Manual* for information about installing the secure browser in kiosk mode, a requirement for online testing.

Thin Clients: NComputing and Terminal Servers for Windows

NComputing

Table 4 lists the supported hardware and software for NComputing solutions.

Table 4. Supported NComputing solutions

Supported Server Host	Supported Server Software	Supported Terminals*
Windows 2008 R2	vSpace Server 8	L300

Terminal Servers

Table 5 lists the supported terminal servers for use with a thin client machine.

Table 5. Supported terminal servers

Supported Terminal Servers	Supported Thin Client
Windows Server 2003, 2008 Windows Server 2012 can be used; however, AIR conducts quality testing on and officially supports Windows Server 2003 and 2008.	Any thin client that supports a Windows Server.

Warning: Security Issues with Terminal Services or Remote Desktop Connections to Servers

Using a terminal services or remote desktop connection to access a Windows Server or workstation that has the secure browser installed is typically not a secure test environment. Therefore, AIR does not support terminal services or remote desktop connections to access a Windows Server for secure online testing.

Supported Web Browsers for Online Systems

This section lists the supported web browsers for the 2014–2015 test year. It also addresses AIR's secure browsers for student testing.

Supported Web Browsers By Operating System

Table 6 lists the supported operating systems and corresponding web browsers for each AIR application. AIR recommends using recent versions of supported web browsers. Each application requires disabling pop-up blocking software and enabling JavaScript. Be sure to use the correct combination of operating system and web browser. For example, Windows 8 requires Internet Explorer 10 or 11.

Table 6. Supported Web Browsers by Operating System

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Practice Test	TIDE	ORS	THSS
Windows							
XP (SP3)	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
Vista	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
7	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
		Internet Explorer 10–11	✓	✓	✓	✓	✓
8.0	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
		Internet Explorer 10–11	✓	✓	✓	✓	✓
8.0 Pro, 8.0 RT	Surface Pro Asus Transformer Dell Venue	Internet Explorer 10–11	✓	✓			✓
8.1	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
		Internet Explorer 11	✓	✓	✓	✓	✓

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Practice Test	TIDE	ORS	THSS
Mac OS X							
10.5 (Power PC)	Desktops, laptops	Firefox 3.6	✔	✔	✔	✔	✔
		Safari 5.1	✔	✔	✔	✔	✔
10.5 (Intel)	Desktops, laptops	Firefox 10–16	✔	✔	✔	✔	✔
		Safari 5	✔	✔	✔	✔	✔
10.6	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
		Safari 5	✔	✔	✔	✔	✔
10.7	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
		Safari 5–6	✔	✔	✔	✔	✔
10.8	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
		Safari 6	✔	✔	✔	✔	✔
10.9	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
		Safari 7	✔	✔	✔	✔	✔
10.10	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
		Safari 8	✔	✔	✔	✔	✔
Linux							
Fedora 16–20	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
openSUSE 13.1	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔
Red Hat Enterprise 6.5	Desktops, laptops	Chrome 31–39	✔	✔	✔	✔	✔
		Firefox 10–33	✔	✔	✔	✔	✔

Supported Operating Systems	Supported Devices	Supported Browsers	TA Sites	Student Practice Test	TIDE	ORS	THSS
Ubuntu (LTS) 10.04, 12.04, 14.04	Desktops, laptops	Chrome 31–39	✓	✓	✓	✓	✓
		Firefox 10–33	✓	✓	✓	✓	✓
iOS							
6.0, 6.1	Supported iPads	Safari 6	✓	✓			
7.0, 7.1 8.0–8.2	Supported iPads	Safari 7	✓	✓			
Android							
4.0.4–4.4	Supported tablets	Chrome 31–39	✓	✓			
Chrome OS							
31–39	Chrome-books	Chrome 31–39	✓	✓			

Secure Browsers for Online Testing

Table 7 lists the AIR secure browsers for each operating system and device. A secure browser must be downloaded and installed on each computer used for student testing. Districts that installed a secure browser with an older version than the versions listed below must uninstall it before installing the secure browser for the 2014-2015 school year. For instructions on downloading and installing the secure browsers, refer to the *Secure Browser Installation Manual*.

Table 7. Secure Browsers

Supported Operating Systems	Supported Devices	Supported Secure Browser
Windows XP (Service Pack 3), Vista, 7, 8.0, 8.1 Server 2003, 2008	Desktops/Laptops/Netbooks	7.2
Mac OS X (PowerPC) 10.5	Desktops/Laptops/Netbooks	5.6
Mac OS X (Intel) 10.5	Desktops/Laptops/Netbooks	6.5

Supported Operating Systems	Supported Devices	Supported Secure Browser
Mac OS X (Intel) 10.6–10.10	Desktops/Laptops/Netbooks	7.2
Linux Fedora 16–20 openSUSE 13.1 Red Hat Enterprise 6.5 Ubuntu 10.04, 12.04, 14.04 (LTS)	Desktops/Laptops/Netbooks	6.5
iOS (iPads) 6.0, 6.1 7.0, 7.1 8.0–8.2	iPad 2 iPad 3 4th-generation (Retina Display) iPad Air	AIRSecureTest Mobile Secure Browser
Android 4.0.4–4.4	Google Nexus 10 Motorola Xoom Samsung Galaxy Note (10.1) Samsung Galaxy Tab 2 (10.1)	AIRSecureTest Mobile Secure Browser
Chrome OS 31–39	Chromebooks	AIRSecureTest kiosk application

Delaying Firefox Updates

AIR conducts quality assurance on the most recent Firefox versions for each system except the Student Testing Site (which requires the secure browser). You should wait before installing new versions of Firefox, which could impact system performance. Delaying updates allows AIR time to review changes and verify each system works correctly with the new version.

For the Student Practice Test Site, if you update Firefox to a new version that has not been thoroughly tested, you will receive a warning message.

To learn how to disable auto-updates for Firefox, see https://support.mozilla.org/en-US/kb/forum-response-turning-auto-update. You may need to disable auto-updates again after installing a newer version.

Requirements for Peripheral Equipment

This section describes the requirements for peripheral equipment: monitors, screens, keyboards, and headphones.

Monitors and Screen Display Requirements

All supported computers, laptops, netbooks, and tablets must meet the following requirements.

Screen Dimensions

Screen dimensions must be 10" or larger (iPads with a 9.5" display are included). This means the following devices are **not** supported:

- Apple iPad Mini

- Google Nexus 7 and similar-sized Android tablets

- Netbooks with screen dimensions smaller than 10"

Screen Resolution

All devices must meet the following minimum resolution. Larger resolutions can be applied as appropriate for the monitor or screen being used.

- Desktops, laptops, and tablets: 1024 × 768

- Netbooks: 1024 × 600

Depending on the screen size, students may need to use vertical or horizontal scroll bars to view all test-related information. Students may also use the Zoom tool in the online test to enlarge the content on the screen.

Keyboards

External keyboards are strongly recommended for tablets used for testing, and some states require external keyboards for such devices. Students may use mechanical, manual, and Bluetooth-based keyboards. While wireless keyboards are permissible, districts should be aware that high-density deployments of wireless keyboards and mice might interfere with each other or with the wireless network. Some external keyboards have additional "shortcut" buttons that can create security issues. These buttons may allow students to open another application or the tablet's default on-screen keyboard. AIR strongly cautions against using keyboards that have these shortcut buttons.

Keyboards with the Android

The Android mobile secure browser requires the secure browser keyboard to disable predictive text. Therefore, any external keyboard that has a shortcut button to open the tablet's default keyboard is not permitted, as this default keyboard will override the mobile secure browser keyboard.

AIR has determined that the EZOWare Slim Full Size Keyboard contains a shortcut button that opens the default keyboard and should NOT be used with Android tablets.

Headphones

Students will need headphones to listen to audio in online assessments.

- Students with the text-to-speech feature can listen to stimuli or test items being read aloud.

- Students with the enhanced accessibility mode feature can use the Job Access with Speech (JAWS®) or other similar screen reading software.

Test Coordinators should determine how many students will need headphones prior to testing to ensure that there is an adequate supply on hand.

Two types of headphones are supported: USB and Bluetooth.

- USB headphones are recommended over Bluetooth. These headphones provide reliable performance regarding clarity and accuracy.

- The following Bluetooth headphones are supported: Logitech H800, SoundBot SB270, and ECO Sound ECO-V300.

Mice

Mice on mobile devices are not supported. Wireless or wired mice on desktops and laptops that are compatible with the operating system are supported.